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A case study in deaf-blindness.

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A CASE STUDY IN DEAF-BLINDNESS *copy 3.*

By RALPH V. MERRY



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A CASE STUDY IN DEAF-BLINDNESS¹

By RALPH V. MERRY

I. INTRODUCTION

THE double sensory deprivation of blindness and deafness constitutes an interesting, though difficult problem in education and social adjustment. Those who possess but a superficial knowledge of the subject of sensory defects cannot easily understand how the loss of two so important factors in mental development can result in anything less than idiocy. An example of this attitude is shown by a conversation which actually took place between a visitor to a certain institution and a member of the staff. The visitor had been observing a demonstration of the abilities of a deaf-blind pupil and finally asked:

"Is he really blind?"

"Yes."

"Can't he see?"

"No."

A pause, then:

"Is he deaf?"

"Yes."

"Can't he hear?"

"No."

Another and longer pause, then:

"How does he know when he's asleep?"

Amusing, no doubt, yet the ideas of this visitor regarding deaf-blindness are fairly representative of those held by the majority of persons with full sensory equipment. It is exceedingly difficult to correct this popular misunderstanding and this alone forms no small part of the total problem of normalization. If sympathetic interest and understanding could be substituted for the too common ignorance and sentimentalism the task would be rendered considerably easier.

Dr. S. G. Howe demonstrated many years ago by his successful training of Laura Bridgman that deaf-blindness did not necessarily mean that such an individual was uneducable. It is true that his pupil never learned speech and never appears to have

¹ The writer wishes to make grateful acknowledgment to those of his friends who assisted in the preparation of the present study.

attained what could be regarded as a free and easy literary style, but she was very far indeed from being an idiot or a moron.

The greater achievements of Helen Keller under the painstaking and faithful assistance of Miss Sullivan illustrate the intellectual level which at least some of the deaf-blind may reach if proper opportunities are forthcoming. It seems strange that the widely-known success of Helen Keller should not have influenced public opinion in respect to sensory deprivation more than it has done. The only plausible explanation seems to be that she is regarded as bordering on the supernatural—a genius entirely above the common order of mortals, and therefore no criterion by which to judge the capacities of the deaf-blind as a class.

While the present writer has no wish to belittle the truly great achievements of Helen Keller, it is but fair to point out that no other individual with like defects appears to have had equal educational opportunities. The case of Laura Bridgman represented the first attempt to educate a deaf-blind individual, and naturally, the working out of technique by a method of trial and error, although it benefited those of similar handicaps who came later, was not destined to bring out the pupil's entire potentialities.

During more recent years the tendency has been to abandon the individual case method employed in the training of Helen Keller and Laura Bridgman, and to distribute the few deaf-blind individuals of school age among institutions for the blind and institutions for the deaf. This is unfortunate, since they belong neither to one group nor to the other, and welcome in neither. Schools for the deaf have neither the apparatus nor the time to deal with one who has no vision, while schools for the blind do not wish to be troubled with pupils who cannot hear. Pupils and teachers in both types of institution are either openly antagonistic or simply allow the deaf-blind individual to follow his own devices. Consequently, no matter which institution he may attend, he will be badly adjusted both educationally and socially.

A combined individual case and group method of approach would seem to be the most satisfactory solution of the problem. Individual differences, innate and acquired, play so important a part in the training of the deaf-blind that a careful study of these peculiarities is necessary to a complete understanding of individual abilities and shortcomings. After a thorough study of this sort has been made, the education and socialization of the individual can proceed far more effectively. It cannot be denied that true socialization of the deaf-blind is extremely difficult. The factor of deafness constitutes a more serious social than educational

handicap. As lip-reading is not easily accomplished by touch, communication must be carried on by signs of some kind, and is, therefore, limited to those who have sufficient interest in the case to take the time and trouble necessary to converse in this manner.

Whichever type of school the deaf-blind pupil may be attending, he will be able to participate in certain extra-curricular activities with the other pupils. This, in itself, will act as a socializing agent. It can hardly be gainsaid that the peculiar case of the deaf-blind demands individual attention during the entire educational period. Whether this individual attention need be as constant and as close as that shown in the case of Helen Keller and Miss Sullivan is another question. It is difficult to say, also, whether these individuals belong more properly to the deaf, as a group, or to the blind. It is questionable, too, if an institution where special technique could be developed for the education of the deaf-blind would not be the most advisable solution. These questions cannot be answered with finality but, in any case, it seems fairly certain that deaf-blind pupils need a large measure of individual attention to insure normal development.

The present case study is designed to illustrate the truth of the foregoing statement. Other studies of the deaf-blind have been made, such as the diaries kept by the teachers of Laura Bridgman,² Miss Sullivan's notes on Helen Keller³ and Mlle. Rocheleau's biography of Ludevine Lachance.⁴ These, however, contain so much relatively unimportant detail that it is difficult to separate the significant facts from the body of the account. Miss Keller's subjective study⁵ is interesting and instructive, but so highly-colored with imaginative material that one finds it difficult to isolate the actual facts.

The subject of the present study, hereafter referred to as S., came to the writer's attention in October, 1927. He was asked to assist S. in the English work of the eighth grade with which he appeared to be having some difficulty. He was told, when he inquired concerning the ability of S. for school work that he *could* work, but was very lazy and had no ambition to improve in his studies. It was implied that his mentality was fair, although he was treated as a small child notwithstanding the fact that he was well on in adolescence.

From October to January, the writer spent three hours weekly

² Howe, M., and Hall, F. H. Laura Bridgman.

³ Keller, Helen. The Story of My Life.

⁴ Rocheleau, Corinne. Hors de Sa Prison.

⁵ Keller, Helen. The World I Live In.

assisting S. in his English and incidentally, trying to gather all possible information regarding his personal history and his capacities. In February, S. came to the writer two hours a week for history. At this time, it was determined to make a thorough case study of S. and additional time was spent in giving mental and educational tests, and in collecting data of various kinds. From February 1 to May 1, a minimum of six, and a maximum of twelve hours weekly was spent on this study, not including after-school and Sunday talks.

The results obtained appear to have justified the time expended, both for the benefit to S. and for the light thrown on the difficulties attendant upon the education of the deaf-blind group. The data are presented in as brief, clear, and complete a manner as possible. The conclusions are drawn in a spirit of conservatism with no attempt at dogmatism or finality. It is hoped that the study may prove of general interest in the field of educational and social psychology as well as to those more directly concerned with the education of sensory defectives.

II. THE CASE

(A) *Personal and family history*

S. was born in one of the Western agricultural states, June 14, 1909. He is the eldest of a family of six, having four brothers and one sister, all in sound physical condition. The family appears to be of the ordinary agricultural type, steady and industrious, though distinctly not brilliant. Prior to the death of the father in the summer of 1919 financial circumstances were fairly comfortable. He owned a small farm, and also drove mail from a nearby railroad station to a small town some miles distant. Both father and mother had very limited educational opportunities but it seems that S. and his father were excellent friends and had the latter lived, S. would doubtless have met with more sympathetic understanding from his family than he has received.

After his father's sudden death from heart failure S. worked very hard assisting his mother who undertook to carry on her husband's work as mail carrier and also to keep the small farm running. He had never been particularly robust and found the work extremely exhausting. Besides his farm work, S. attended the district school but, according to his own report, was unable to keep up with his class because of his heavy home duties. The teacher seems to have been one of the type, fortunately becoming obsolete, whose chief aim in school was to mete out as many disagreeable punishments as possible.

One day in April, 1920, S. missed several words in spelling. He had had extra spring chores to do and had not found time to prepare his lessons. As punishment for this grievous misdemeanor, the teacher compelled the child to sit on the floor with no support at his back and with arms held straight out in front of him. He was forced to remain in this position for several hours until practically exhausted.

Already over-strained by work too hard for him, this added trial brought on acute cerebrosplinal meningitis, which resulted in complete loss of sight and hearing. Thus, at approximately the beginning of his twelfth year, S. was deprived of two of the most vital organs of sensation.

Returning home from the nearest hospital after his recovery, S. was regarded by his family as being hopelessly defective and was looked upon as a permanent liability, requiring care which he could never help to earn. It must be pointed out clearly that they were kind to him in the sense of physical kindness, that is, they attended to his bodily needs, but no attempt was made to talk to him or keep him in touch with the world. He was simply allowed to vegetate, passing the majority of his time sleeping. In 1921 an uncle took him to a chiropractor in a neighboring city and he spent some months under treatment but, needless to say, with no noticeable results.

S. remained in this vegetative period for two years, until, in the autumn of 1922, through the interest of friends who had become aware of his case, he entered the State School for the Blind. Here he remained with but a short break, until Christmas of 1925. He returned home, and though he had made remarkable progress at school his family still preserved much the same attitude toward him as they had hitherto held. He was eager to talk, to exchange ideas, and to learn things about the world. They made no effort, however, to satisfy his intellectual hunger, attending only to his physical needs.

In the autumn of 1926, through the influence of a prominent worker for the blind who had met S., he was brought to a large eastern institution for the blind. He remained here during the school year of 1926-27, returning to his western home for the summer vacation. In September, 1927, he again came east to school, and during the following month, came to the attention of the writer. S. says since coming east, his family are beginning to realize that he has other than physical needs and they are now making greater efforts to develop a sympathetic understanding toward him.

(B) Mental and educational level

Practically all the teachers who worked with S. subsequent to his sensory deprivation rate his intelligence as "superior". They base their estimate upon the quickness with which he grasps new situations, his ability to comprehend explanations, and his keen sense of humor. In educational achievement, he had completed the work of the fourth grade prior to his illness, but owing to the long period of neglect which followed it, he appears to have slipped back to some extent. When he left the western school for the blind, he had completed the work of the sixth grade, and he is at present doing some subjects in the eighth grade, and some in the freshman year of high school.

To check up these general estimates, the writer determined to give S. certain selected intelligence and achievement tests, not with any intention of assigning a quantitative score, but rather to examine carefully the qualitative responses with a view of discovering to what extent these accorded with teachers' opinions. The tests used were derived from three main sources: (1) the Hayes-Irwin adaptation of the Stanford-Binet Scale,⁶ (2) Pintner's Scale of Performance Tests,⁷ and (3) adapted achievement tests for use with blind pupils.⁸ The vehicle in which the tests were given was a combination of the manual alphabet and the braille system, in both of which S. is proficient. He receives quickly and accurately, words spelled into the palm of his hand, and can also understand printed letters made with the finger upon his palm. He reads quite rapidly with the left forefinger alone, and writes quickly and accurately on a braille frame. He can also use a typewriter with a fair degree of speed and precision.

Of the tests selected from the adapted Stanford-Binet Scale, the vocabulary was probably the most diagnostic. The technique followed, was to spell the word to S. by the manual alphabet, have him repeat the word, to be sure he had received it correctly, and then give the definition which was written down by an assistant. S. gave satisfactory definitions for 17 words, establishing his vocabulary level at twelve years. Certain definitions were of intrinsic interest, for example the word "tap" was defined as "make a noise". This may indicate the retaining of a certain degree of auditory imagery which is associated with words expressing action. "Curse" was defined as "something disagreeable" but as it is difficult to get a satisfactory response to this

⁶ Hayes, S. P. Ten Years of Psychological Research in Schools for the Blind. (Scale obtainable from S. P. Hayes.)

⁷ Pintner, R., and Paterson, D. A Scale of Performance Tests.

⁸ Hayes, S. P. Self-Surveys in Schools for the Blind.

word from most children this vagueness is not surprising. Other definitions were counted as unsatisfactory because of insufficient detail, such as "pork" defined as "hogs or pigs" and "outward" defined as "at a distance". One or two definitions were entirely wrong, such as that given for "ramble" which was "a speed, hurry". Thinking the word had been confused with "scramble" it was given a second time evoking the same response. The confusion of the two words, may, nevertheless, exist in the mind of S. though he is not conscious of it. Other words including "hysterics", "brunette", etc., were unknown. Many of the definitions given, however, were excellent, for example, "skill" was defined as "ability or power", "regard" as "a person's friendship", etc.

Two other tests of those assigned to year 12 were given to S., viz., No. 3 and No. 6. The former was the "finger-tapping" test in which the subject taps the fingers of his left hand with the forefinger of his right in the order similar to that in which the examiner touches them with the tip of a pencil. This test was passed easily by S. at this stage, but he failed on the more complicated form assigned to year 18.

Test No. 6 is the regular "similarities" test in which the subject gives a similar quality possessed by a group of three things. S. passed this test without difficulty. The test of interpretation of fables, was given with the 16-year group.

Four tests from the 14-year group were given, viz., Nos. 2, 4, 5, and 6. No. 5, consisting of simple arithmetical reasoning, was the only one passed by S. In test 2 (defining abstract forms) "pity" and "envy" were correctly defined, but "revenge" was given as "taking advantage" and "justice" was defined as "an officer". "Charity" was unknown. The responses to test 4 (analogies) were also correct at first, but to the situation, "Storm is to calm as war is to—what?" S. replied "battle", and to that of "Known is to unknown as present is to—what?" he gave "absent". He failed to understand "Truth is to falsehood as a straight line is to—what?" The dissected sentences comprising test 6 were given to S. written in braille. Previous tests in this group had been conveyed to him through the medium of the manual alphabet. S. successfully worked out the sentences but in two cases took more than the allotted time; 60 seconds were allowed for each sentence, and in one case S. took 80 seconds, in another 78 seconds. It was felt that this penalization on time was not quite fair to S. and that he should have received some credit for having correctly arranged the sentences. However, according to the usual method of scoring, no credit could be allowed. A comparison of

the results of this test with those obtained from Pressey's Verbal Ingenuity test indicates further that S. ought to have received at least partial credit on marginal errors.

Of the tests comprising the 16-year group five were given, *viz.*, Nos. 2, 3, 4, 5, and 6. Tests 2, 4, and 5, were successfully passed. The interpretation of fables (No. 2) was evidently easy for S. They were given to him written in braille and he was allowed to take his time to read them. His interpretation of "The Farmer and the Stork" differs from the expected response. He said, "It is well to keep out of the way of wicked people, lest we fall in the trap with them".

Test 3 (differences) was difficult. He could not give satisfactory differences between a president and a king, and made vague statements as "A president is not watched so closely"; "A president has more to do with the making of laws", etc. S. was able to solve the problems of fact (test 4) satisfactorily. These were given by means of the manual alphabet and the ordinary responses were obtained. He was also able to reverse the clock hands readily (test 5) which was somewhat surprising. It seemed to indicate the possible retention of considerable visual imagery, and this belief was borne out by the methods used by S. in attacking performance tests. Test 6 (problem of enclosed boxes) was too difficult for him. He got the first part of the problem but gave the same answer for the second and third parts.

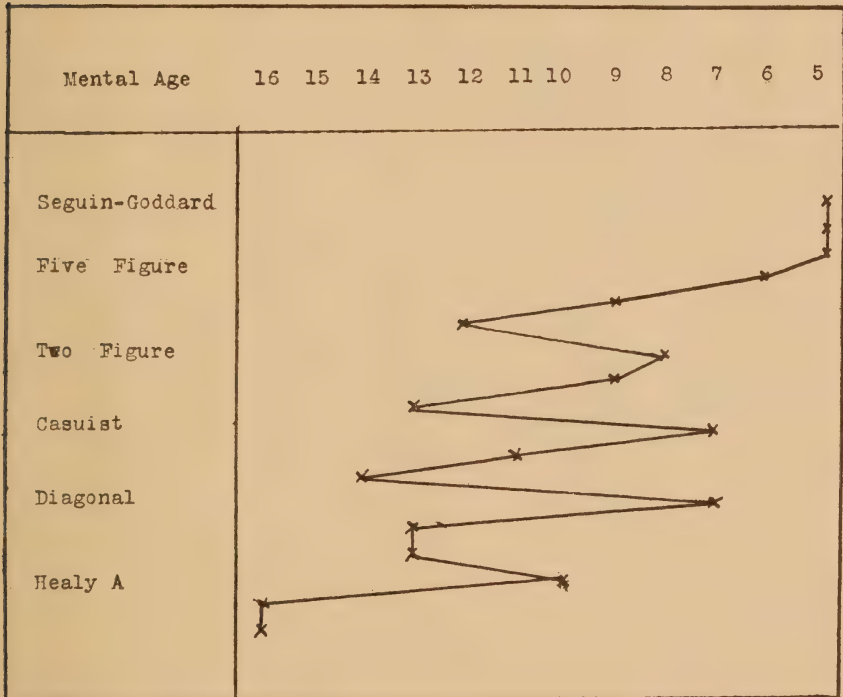
In the 18-year group two tests Nos. 2 and 6 were given (finger-tapping and abstractions). S. could not follow the more complex order of finger-tapping, and either saw no differences in the abstractions, or did not know what they meant. No attempt was made to estimate an I.Q. on the basis of the foregoing tests, their qualitative value alone being of interest.

The performance tests given, and the results obtained are shown in Figs. 1 and 2. It will be noted that the scoring, according to Pinter's scale greatly penalizes S. in respect to time. It would naturally be expected that a blind individual would require more time in the performance of tests of this type than would one with normal vision. This time factor should therefore, not be taken too seriously. Fig. 2 shows that with regard to errors and numbers of moves, S. made a very creditable record. A re-standardization of the time limits, which would take lack of vision into account, would raise the scores in many instances.

In all these performance tests S. displayed forethought, planning ability, and quickness of learning. In most cases he first felt the board carefully, then examined the pieces, picked out those

he wanted, fitted them together and filled the figure upon which he was working. Again his method of procedure seemed to indicate the retention of visual imagery which enabled him to remember in visual terms, that which his fingers had felt upon the board and among the pieces. Whether or not this is true, he displayed considerable ability in remembering shapes and combinations of

FIG. 1
PROFILE SHOWING MENTAL AGE BASED ON PERFORMANCE TIME.*



* Comparison of Figs. I and II shows clearly that the normal time standardization of the performance scale is most unfair to a blind subject. Note the discrepancy between the mental age of S. as judged by (1) time; and (2) moves and errors.

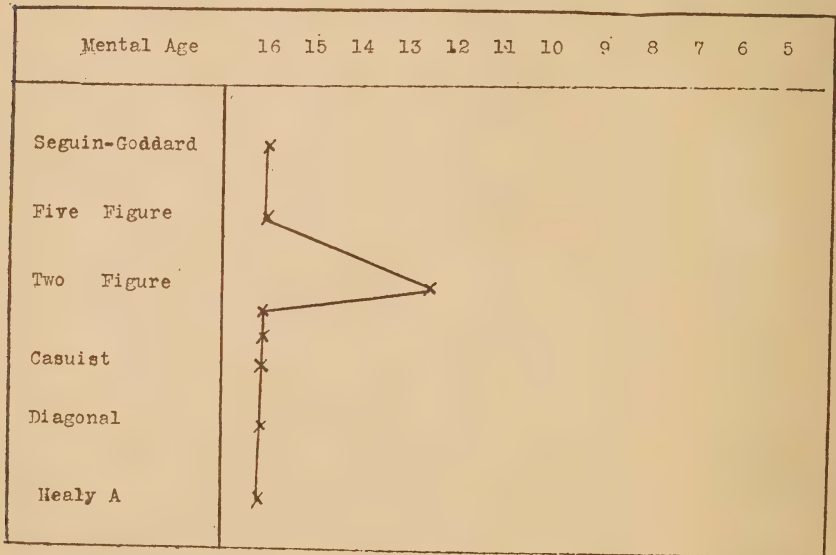
shapes. His sense of form appeared excellent and he made no errors in selecting the right pieces for the right places.

Fig. 3 illustrates the tests given from certain adapted achievement measurements. The scores are judged from curves based upon the performances of several hundred blind children. It will be seen that the achievement age does not vary greatly, and that it is approximately equal to the mental age shown by former tests. It is rather surprising that so good a score should have been made on Pressey's Moral Judgment test when so meager a knowl-

edge of abstract qualities had been shown by the Stanford-Binet. The discrepancy between the results of the test on dissected sentences contained in the 14-year group of the Stanford scale, and Pressey's Verbal Ingenuity, has already been mentioned.

The results of these tests indicate, with a fair degree of clearness, that while it is probably an exaggeration to speak of S. as mentally superior, his intelligence is nevertheless very good. His most serious retardation seems to be that of vocabulary which, according to Miss Reamer's findings⁹ is common to deaf indi-

FIG 2
PROFILE SHOWING MENTAL AGE BASED ON MOVES AND ERRORS.



viduals. The most diagnostic and reliable test of intelligence for one in S.'s condition is probably to be found in the performance scale. Owing to his two years of complete vegetation, and his limited means of obtaining experience, we would naturally expect to find some retardation but there is no reason to believe, as far as test results are concerned, that S. was or is, mentally defective.

(C) *Dreams*

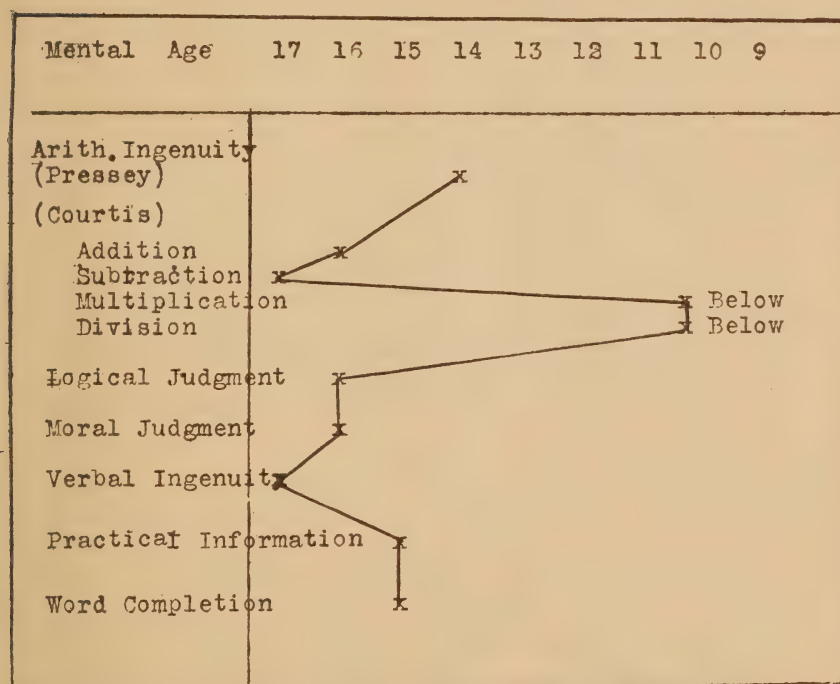
The impression, gained through his responses to certain tests, that S. retained some degree of visual and auditory imagery, was further substantiated by a study of his dreams. The method followed was to prepare a number of questions calling for simple,

⁹ Reamer, J. Mental and Educational Measurements of the Deaf.

direct answers which would show clearly the type of imagery prevailing in dream life. Care was taken to eliminate in so far as possible, all chances of confusion or suggestion. The questions were given to S. slowly, through the medium of the manual alphabet, and his replies recorded verbatim.

The results obtained from a careful examination of these replies may be summarized as follows: (1) S. dreams a great deal. (2) Sometimes his dreams are coherent and natural, sometimes

FIG 3
PROFILE OF EDUCATIONAL ACHIEVEMENT TESTS.



unreal and distorted. (3) When dreams are natural and vivid, S. often remembers them over long periods of time. (4) Sensations of falling from a great height and fear of strange animals appear in his dreams, but no fear of fire or of death is evidenced. (5) Definite auditory sensations are experienced in dreams, *i.e.*, the hearing and enjoying of an orchestra, the recognition of friends by their voices, etc. (6) No conclusive proof of the existence of visual imagery in the dreams of S. was obtainable. He could not remember of ever "seeing" anything. He stated that he sometimes knew his friends just by "seeing" them, but it was

thought that the term "seeing" was used in a colloquial sense and did not imply actual visual perception. S. probably meant that in his dreams, he often knew his friends at once without any particular effort at recognition. (7) Sex dreams did not appear to be present. S. said his dreams were mostly about the boys with whom he came in daily contact although he did appear to be rather self-conscious and uncertain on this point. No further questions were asked, however, as a psychoanalytic interpretation was not being sought.

The dreams of S. are in many respects similar to those of Helen Keller¹⁰ and Laura Bridgman, and also resemble, to a certain extent, the dreams both of blind and of deaf individuals.¹¹ There are, however, certain striking points of difference. Helen Keller's dreams show no fear of animals, but fear of fire and of death is prominent. Notwithstanding the fact that Laura Bridgman claimed to have auditory sensations, students of her dreams find no proof of the existence of either visual or auditory imagery.¹² She dreamed of fearing animals, however, and her sex dreams were reported as naïve and indefinite. Helen Keller's dreams appear to be essentially in terms of tactual experience and no visual nor auditory imagery appears.¹³ It must be borne in mind, however, that with Laura Bridgman and Helen Keller sight and hearing were lost at a much earlier period than in the case of S. The dreams of both the deaf and the blind show fear of animals and of fire.

The fact that S. appears to have no proof of visual imagery in his dreams shows a discrepancy with the interpretation placed upon certain of his test performances. It is a question, nevertheless, whether visual imagery could entirely disappear while auditory imagery was so strongly retained. In considering the apparent preëminence of auditory over visual imagery in the case of S. an interesting point arises. When sight and hearing are totally lost in comparatively late childhood, does auditory imagery tend to persist longer than visual imagery? May it not be possible that certain tactual sensations, such as the vibrations set up by an orchestra or an organ, may be associated with auditory images, and thus serve to strengthen and perpetuate auditory imagery after visual imagery has practically disappeared? S., for example,

¹⁰ Keller, Helen. *My Dreams*. *Century Magazine*, Vol. LXXVII.

¹¹ Kimmins, C. W. *Children's Dreams*. Chap. 7.

¹² Hall, G. S., Laura Bridgman. *Mind*. Vol. 4.

¹³ Jastrow, Jos. *The Dreams of the Blind*. *The New Princeton Review*, Jan., 1888; Jastrow, Jos. *Dreams of the Blind* (from *Fact and Fable in Psychology*).

was very fond of going to the occasional school dances and sitting near the orchestra platform where he could distinctly feel the rhythmic vibrations of the dance music. In his dreams he often goes to dances and insists that he "hears" and enjoys the music. It is quite possible that the study of a large number of late adventitious cases of deaf-blindness would prove the foregoing theory to be erroneous, but it is nevertheless an interesting speculation and serves as a plausible explanation of the retention of auditory imagery in the case of S.

(D) *Speech*

During the two years in which S. was left to himself, his speech was almost entirely lost. Teachers who worked with him when he first entered the western school for the blind inform the writer that S. had formed the habit of forcing his voice through his nose, making most disagreeable sounds, and rendering his attempted words unintelligible. While no one at the school had knowledge of scientific methods of speech correction, their efforts in improving his speech met with considerable success.

Their first method of procedure was to overcome the antipathy which S. had formed for society in general and to encourage him to communicate with others and to be in their company. He was then shown how necessary it was for him to speak in a manner which could be readily understood if he wished people to talk with him. The desire for clear speech thus implanted in S. was fostered and assisted by every possible device, and when S. left this school his speech, though by no means perfect, could be understood with little difficulty.

Since his residence in the east, S. has had scientific speech training and the writer has endeavored to correct and assist him in every way possible. The chief faults of speech which are noticeable in S. are his tendency (common to most deaf persons) of accenting silent vowel sounds such as *bas-e-ball*, *volum-e*, etc., and in slurring over syllables in the middle of long words without proper emphasis.

If Gault's experiments with the teletactor¹⁴ are sufficiently successful to demonstrate his method as feasible for teaching speech to the deaf, it ought to be of great service to S., since his major speech defects are exactly those which Gault's instrument is designed to correct.

¹⁴ Gault, R. H. Drafting the Sense of Touch in the Cause of Better Speech. *Journal of Experimental Psychology*, September, 1927.

(E) Physical Condition

It has already been mentioned that S. was not a very strong child prior to his illness. Subsequent to that time his health was in a very poor condition. When he entered the western school he spent much time in bed, was very nervous and subject to frequent heart attacks. His health, however, gradually improved but he is still far from robust. He is well grown for his age and of good proportions. Since coming east the heart attacks occur much less frequently and with less violence. S. is, however, very nervous, subject to involuntary twitching and trembling. He is unable to endure long periods of sustained effort, and all tests given him were scattered over a period of many weeks to prevent any possibility of nervous strain. He has frequent headaches and his digestion is occasionally out of order, due for the most part to lack of exercise. He suffers a good deal from sleeplessness, particularly if excited or overtired. Consideration of his physical condition is necessary in connection with all his school work and recreation in order that suitable amounts of each may be arranged.

(F) Moral and Social Traits

The moral caliber of S. appears to be high. He seems truthful and trustworthy, frank and good-natured. He resents being treated as an inferior or as a small child, and is reticent with those whom he thinks he cannot trust. He forms strong attachments for those who are kind to him and is very loyal to his friends. None of his teachers believe him to have any undesirable personal habits. He is neat and cleanly and always presents a good appearance. As his hands are his chief means of communication, he feels he must pay special attention to keeping them clean.

S. does his work well alone but needs constant encouragement and guidance. The habits of idleness formed during his long period of listless home life still obtain to some extent. He cannot properly be called lazy, for he works well if his initiative and interest are enlisted, but if left to himself will waste most of his time dawdling. He is easily discouraged, and care must be taken in correcting his errors or he will cease trying. Altogether he possesses a personality which, if properly understood, is likeable and agreeable. One must not expect too much, and yet one must not treat S. as if he were distinctly deficient in mentality as well as in sensory equipment.

III. CONCLUSIONS

The conclusions to be drawn from the foregoing case study fall into two classes, (1) those affecting S. alone and (2) those affecting the treatment of deaf-blind individuals as a group. Among the first may be noted:

1. A knowledge of S.'s history, physical condition, intelligence, achievement level, and personal character enabled the writer and other teachers to adapt their methods to his individual needs. Changes brought about in this way have proved beneficial to S. and he has been happier and more successful in his work and recreation.

2. S. appeared to have considerable auditory imagery, but no proof of the existence of visual imagery could be established. His dreams agree in the main with those of other deaf-blind individuals and with those of the deaf and the blind as separate groups. His retention of auditory imagery may be due to the association of essentially tactual sensations with auditory images.

3. It was demonstrated that S. could not be expected to do satisfactory work if left quite to himself. He needed encouragement, motivation, and assistance. When these were present he worked with zest; when they were lacking he relapsed into inactivity.

4. It is apparent that S. needs, above all things, the social intercourse of friends who will enlarge his mental field and make him feel that he is in active touch with the world. Pupils of his own age, who regard him as something of a curiosity, should be encouraged to treat him as their equal and make an effort to talk with him either through the manual alphabet, which is easily learned, or by printing with the finger in the palm of his hand.

Conclusions affecting the treatment of the deaf-blind in general are:

1. The individual case method of approach is probably superior to any other in dealing with the deaf-blind. All facts concerning the individual should be gathered and interpreted before inferences regarding his capacities are drawn and a course of treatment adopted.

2. It is practically impossible to obtain a quantitative estimate of the intelligence of such an individual by means of any existing measurements. Year scales such as the Stanford-Binet are unsuitable, since in few, if any, instances can all the tests assigned to a particular year group be used. Furthermore, the method of scoring makes no allowance for marginal errors which are of impor-

tance in a case of this sort. Performance tests would probably serve as the most accurate means of judging the intelligence of the deaf-blind if restandardization of the time element could be effected.

3. While it may be impossible to obtain a quantitative score, a qualitative study of test results will indicate with some accuracy whether the individual in question is of good native intelligence, and will also give the approximate extent of his retardation.

4. It seems probable that the deafness of a deaf-blind individual is responsible for a greater share of his mental retardation than is his blindness. Serious dearth of vocabulary and awkwardness in use of language, which are found more commonly among deaf than among blind persons, would seem to bear out this fact.

5. If suitable methods be employed and no native mental defect coexists with the sensory deprivation, there is no reason why a deaf-blind individual is not educable. Undoubtedly, a late adventitious case, such as that described in the present study, is a simpler problem than cases of an earlier adventitious or congenital nature. Even these, however, should respond to intensive educational methods, although probably to a lesser extent.

Makers
Syracuse, N. Y.
PAT. JAN 21, 1903

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A case study in deaf-blindness.

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